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1893.]

NATURAL SCIENCES OF PHILADELPHIA.

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NOTES ON CHOEROPSIS LIBERIENSIS (Morton).

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It is well-known that the late Dr. Samuel G. Morton, regarding certain peculiarities presented by the skull of the hippopotamus inhabiting the west coast of Africa as specific in character, proposed in communications made to the Academy<sup>1</sup> that the latter should be distinguished from that of the east coast as *Hippopotamus minor*, afterward *liberiensis*, the former retaining the name of *Hippopotamus amphibius* given to it by Linnaeus.<sup>2</sup> The Academy having afterward acquired an entire skeleton of the Liberian hippopotamus, the late Dr. Leidy took up anew the study of its osteology and more especially of the skull. After a most careful comparison of the skulls of the two species, Dr. Leidy came to the conclusion that the hippopotamus of Liberia differed so much from that inhabiting the Nile, the Cape of Good Hope, etc., that the Liberian animal should be considered as constituting, not only a distinct species, but a distinct genus, and proposed<sup>3</sup> that the new genus should be named *Chaerodes*. Learning, however, that this name had already been appropriated, having been previously given to an insect, Dr. Leidy suggested that the name *Chaerodes* should be changed to *Choeropsis*.<sup>4</sup> While Dr. Leidy's views as to the generic distinction between *Hippopotamus* and *Choeropsis* have been accepted by such high authorities as Gratiolet,<sup>5</sup> Milne Edwards<sup>6</sup> and Huxley<sup>7</sup>, by many zoologists *Choeropsis* is regarded as a species of *Hippopotamus*, and by some only as a variety of *Hippopotamus*

<sup>1</sup> Proc. Acad. N. S., 1844, Vol. 2, p. 14; Journal A. N. S., Vol. 1, 1849, p. 231.

<sup>2</sup> Syst. Nat. 12 ed., Vol. 1, p. 10, 1766.

<sup>3</sup> Proc. A. N. S., 1852, Vol. 6, p. 52.

<sup>4</sup> Journal A. N. S., 2 Ser., Vol. 2, 1853, p. 213.

<sup>5</sup> Recherches sur l'anatomie de l'Hippopotame, Paris, 1867, p. 202. Gratiolet apparently ignorant of Leidy's description, named the Liberian hippopotamus *Ditomeodon*.

<sup>6</sup> Recherches sur les Mammifères, Paris, 1868-1874, p. 43.

<sup>7</sup> Huxley, Anatomy of Vertebrated Animals, 1872, p. 319. At least, Huxley says, "The Hippopotamidae are represented at present only by the genera *Hippopotamus* and *Chaeropus*." "*Chaeropus* has only two incisors in the lower jaw" —by *Chaeropus* is, presumably, meant *Choeropsis*.

*presented by the author.*



*amphibius*.<sup>8</sup> Thus, for example, Flower,<sup>9</sup> a very high authority, does not consider the difference in the shape of the cranium and in the number of the incisor teeth in the lower jaw as warranting the establishment of the genus *Choeropsis*. The difference presented by the crania in the two kinds of hippopotamus, Flower regards as similar to those "between the Tiger and the smaller species of *Felis*, the Gorilla and Baboons and the smaller allied apes." In the judgment of the author, however, it may be at least questioned whether the differences existing between the smaller species of *Felis* do not justify separating them into distinct genera. On the other hand, although the Gorilla has descended in all probability from some Baboon-like form, zoologists do not as yet recognize these two apes as species of the same genus. The fact that *Hippopotamus amphibius* syn. *Tetraprotodon* has, according to Gaudry,<sup>10</sup> exhibited in one instance unilateral hexaprotodontism and *Choeropsis*, according to Flower,<sup>11</sup> in one instance unilateral tetraprotodontism would influence but few palæontologists in regarding, like Lydekker,<sup>12</sup> *Hexaprotodon*, *Tetraprotodon* and *Choeropsis* as merely species of one genus *Hippopotamus*. *Hexaprotodon* and *Tetraprotodon*, with the incisor formula  $\frac{3}{1}-\frac{3}{1}$  and  $\frac{2}{1}-\frac{2}{1}$  respectively, are still considered either as sub-genera, as they were originally by Falconer and Cautley,<sup>13</sup> or as genera, as by the greatest of British palæontologists, the late Sir Richard Owen.<sup>14</sup> The latter view being accepted by the author, *Choeropsis*, with the incisor formula  $\frac{2}{1}-\frac{2}{1}$ , and differing in other respects far more from the living hippopotamus (*Tetraprotodon*) than the latter does from the extinct one (*Hexaprotodon*), should certainly be regarded as a genus distinct from *Hippopotamus*.

It appears to us that too much importance has been attached by Lydekker and Flower to the presence of an extra incisor tooth in the lower jaw of *Hippopotamus amphibius* and *Choeropsis* respectively, especially as it has only been noticed once in either case. We would rather regard the presence of such an incisor tooth as an individual peculiarity and as an instance of redundancy than of reversion. In view of what has already been urged by Leidy,

<sup>8</sup> Carus, Zoologie, 1868, p. 145.

<sup>9</sup> Pro. Zool. Soc. London, 1887, p. 612.

<sup>10</sup> Bull. Soc. Geologique, Ser. 3, Vol. 4, p. 504.

<sup>11</sup> Op. cit.

<sup>12</sup> Memoirs of the Geological Survey of India, 1884-1886, Vol. 3, p. 47.

<sup>13</sup> Falconer, Palæontological Memoirs, Vol. 1, 1868, p. 140.

<sup>14</sup> Odontography, 1840, p. 566.







CHOEROPSIS LIBERIENSIS (MORTON.)

Gratiolet, Milne-Edwards in favor of distinguishing *Choeropsis* as a genus distinct from *Hippopotamus*, there is but little further to be added. It may be mentioned, however, in this connection, that the brain of *Choeropsis* as described by Macalister<sup>15</sup> differs very considerably from that of the adult hippopotamus dissected by Garrod<sup>16</sup> and of the young animal dissected by the author,<sup>17</sup> the differences between the two brains being essentially the same as those presented by the casts of the cranial cavities described and figured by Milne-Edwards. The above remarks are made on the occasion of the presentation to the Academy by Mr. W. E. Rothery, Consul of the Liberian Government, through Mr. Arthur E. Brown, of a fine skin and skeleton of the *Choeropsis liberiensis*. The value of this generous gift will be better appreciated when it is known that the only specimen of *Choeropsis liberiensis* ever exhibited abroad was the one that lived only five minutes after its arrival at the Zoological Garden of Dublin, and which constituted the subject of the dissection made of that animal by Macalister. So far as known to the author, with the exception of the skin presented to the Academy this evening, there are but two others in collections—those referred to by Milne-Edwards and Flower. Our *Choeropsis*, of which we give an illustration taken from a photograph, (Plate IV) is 5 feet 3 inches in length, and 2 feet 5 inches in height, the latter measurement being taken from the shoulder. The color of the skin appears to have been originally of a bluish black, fainter in some parts than others, and presenting, therefore, a somewhat mottled appearance. The difference in color from that of the *Choeropsis* described by Milne-Edwards, which is represented as of a reddish hue, may possibly have been due to the liquor in which the skin was preserved. It is more probable, however, that *Choeropsis* varies in color. In other respects, our specimen resembles that described and illustrated by Milne-Edwards.

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<sup>15</sup> Proc. Royal Irish Acad., 2d Ser, Vol. 1, 1873, p. 494.

<sup>16</sup> Trans. of Z. S. London, 1880.

<sup>17</sup> P. A. N. S., 1881, p. 126.



